

U.S. Serial No.: 10/774,308

Amendment To The Claims

Claims 1-6 (Canceled)

7. (Currently amended) An all-optical wavelength converter circuit for transferring information of an information-bearing signal from a first wavelength to a second wavelength, the wavelength converter circuit comprising:

(a) a polarization controller for (i) receiving an information-bearing signal having the first wavelength, and (ii) adjusting the polarization of the information-bearing signal; and

(b) a laser diode in communication with the polarization controller, the laser diode generating a converted information-bearing signal by transferring the information of the polarization-adjusted information-bearing signal from the first wavelength to the second wavelength,

wherein the laser diode is a pulsed laser diode.

8. (Original) The all-optical wavelength converter circuit of claim 7 further comprising:

(c) at least one filter for filtering the converted information-bearing signal to suppress or eliminate the first wavelength; and

(d) a routing device in communication with the polarization controller and the filter, the routing device (i) directing the information-bearing signal having the first wavelength to the polarization controller, and (ii) directing the converted information-bearing signal to the filter.

9. (Original) The all-optical wavelength converter circuit of claim 8 further

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comprising:

(e) an amplifier in communication with the routing device for amplifying the information-bearing signal having a first wavelength.

10. (Original) The all-optical wavelength converter circuit of claim 8 further comprising:

(e) an amplifier in communication with the filter for amplifying the filtered converted information-bearing signal.

11. (Original) The all-optical wavelength converter circuit of claim 8 wherein the routing device is an optical circulator.

12. (Original) The all-optical wavelength converter circuit of claim 8 wherein the routing device is an optical directional coupler.

13. (Currently amended) The all-optical wavelength converter circuit of claim 7 further comprising:

(c) a routing device in communication with the polarization controller, the routing device (i) directing the information-bearing signal having the first wavelength to the polarization controller, and (ii) directing the converted information-bearing signal to a a ~~[[the]]~~ filter; and

(d) an amplifier in communication with the routing device for amplifying the converted information-bearing signal.

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Claims 14-18 (Canceled)

19. (Currently amended) An all-optical wavelength converter circuit for transferring information of an information-bearing signal from a first wavelength to a second wavelength, the wavelength converter circuit comprising:

(a) a polarization controller for (i) receiving an information-bearing signal having the first wavelength, and (ii) adjusting the polarization of the information-bearing signal; and

(b) a laser diode in communication with the polarization controller, the laser diode generating a converted information-bearing signal by transferring the information of the polarization-adjusted information-bearing signal from the first wavelength to the second wavelength.

~~The all-optical wavelength converter circuit of claim 7 wherein the laser diode is a fiber laser diode.~~

20. (Original) The all-optical wavelength converter circuit of claim 7 wherein the laser diode transmits the converted information-bearing signal to the polarization controller which adjusts the polarization of the converted information-bearing signal.

Claims 21-22 (Canceled)

23. (Original) An optical wavelength switch comprising:
an input for receiving at least a first information-bearing signal having a first wavelength
and a second information-bearing signal having a second wavelength;

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at least two all-optical wavelength converter circuits, each wavelength converter circuit including a laser diode, the laser diode of one of the at least two wavelength converter circuits being in communication with one of the at least first and second information-bearing signals, the laser diode of the other of the at least two wavelength converter circuits being in communication with the other of the at least first and second information-bearing signals, wherein the laser diode in each of the wavelength converter circuits transfers information of the respective information bearing signal to another wavelength using cross-gain modulation; and

an output for transmitting the at least first and second information-bearing signals, wherein the first information-bearing signal has the second wavelength and the second information-bearing signal has the first wavelength.

24. (Original) The optical wavelength switch of claim 23 wherein the all optical wavelength converter circuits include a polarization controller which adjusts the polarization of the information-bearing signal in communication with the laser diode prior to the laser diode transferring the information of the respective information-bearing signal to another wavelength.

25. (New) The all-optical wavelength converter circuit of claim 19 further comprising:

(c) at least one filter for filtering the converted information-bearing signal to suppress or eliminate the first wavelength; and

(d) a routing device in communication with the polarization controller and the filter, the routing device (i) directing the information-bearing signal having the first wavelength to the polarization controller, and (ii) directing the converted information-bearing signal to the filter.

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26. (New) The all-optical wavelength converter circuit of claim 25 further comprising:

(e) an amplifier in communication with the routing device for amplifying the information-bearing signal having a first wavelength.

27. (New) The all-optical wavelength converter circuit of claim 25 further comprising:

(e) an amplifier in communication with the filter for amplifying the filtered converted information-bearing signal.

28. (New) The all-optical wavelength converter circuit of claim 25 wherein the routing device is an optical circulator.

29. (New) The all-optical wavelength converter circuit of claim 25 wherein the routing device is an optical directional coupler.

30. (New) The all-optical wavelength converter circuit of claim 19 further comprising:

(c) a routing device in communication with the polarization controller, the routing device (i) directing the information-bearing signal having the first wavelength to the polarization controller, and (ii) directing the converted information-bearing signal to the filter; and (d) an amplifier in communication with the routing device for amplifying the converted

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information-bearing signal.

31. (New) The all-optical wavelength converter circuit of claim 19 wherein the laser diode transmits the converted information-bearing signal to the polarization controller which adjusts the polarization of the converted information-bearing signal.